FITS Master Instructor Syllabus
TAA Scenario Based Instructor Guide

Version 1.0

TAA Scenario Based Instructor Guide

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ECLIPSE AVIATION

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How to use this generic FITS Syllabus

This FITS Instructor Syllabus is intended as a guide for aircraft manufacturers, training providers, and flight schools to use in developing a specific FITS curriculum for their aircraft, geographic region, and customer base. The syllabus lays out a series of five flight scenarios. When followed, they enable a pilot transitioning into a piston engine Technically Advanced Aircraft (TAA) to master the aircraft, the technology, and most importantly, the concepts of Risk Management and Aeronautical Decision Making. These areas provide the main challenge for single pilot operations in the National Airspace System.

To Teaching Instructors

Each lesson consists of a scenario description, followed by a list of specific tasks to be accomplished by the student. Each scenario also includes a "student centered" set of grading criteria. Within the confines of each scenario, the Instructor in Training (IT) and Teaching Instructor are free to plan training activities that support the overall scenario flow. This provides the most faithful replication of real world, day-to-day flying.

To Instructors in Training (IT)

The emphasis in each scenario is on IT planning and execution of each scenario with as little help as possible from the Teaching Instructor. The value of scenario-based training lies in the opportunities it provides to plan, execute, and respond to changing situations in a thoughtful way.

To Aircraft Manufacturers, Training providers, and Flight Schools

This generic syllabus is a guide for you to use in developing your specific FITS Instructor curriculum. FITS acceptance is achieved by developing your specific curriculum and submitting it to:

FITS Program Manager, AFS-840
800 Independence Avenue, SW, Washington DC, 20591
202 -267-7922

Use of the FITS logo.

Once accepted, you are free to use the FITS Logo on all curriculums and in advertising about this particular curriculum. The FITS logo will not be used in relationship to non-FITS products.

Section 1 - FITS Introduction

FAA Industry Training Standards (FITS)

The FITS Program is a joint project of the FAA-sponsored Center for General Aviation Research (CGAR), Embry Riddle Aeronautical University, The University of North Dakota, and the General Aviation Industry.

FITS Mission Statement

Ensure pilots learn to safely, competently, and efficiently operate a technically advanced piston or light jet aircraft in the modern National Airspace System (NAS).

FITS Imperatives:

The Administrator's Flight Plan is a commitment by the FAA and the aviation industry to significantly reduce the number of general aviation accidents—the majority of which (75%) are pilot- induced. Compounding the challenge of this initiative is the emergence of a new class of technically advanced general aviation aircraft that offer significant improvements in performance and capability. These innovative aircraft are equipped with automated cockpits and attain cruising speeds that require flight management and decision-making skills normally expected from ATP-level pilots; yet they may be flown by pilots with significantly less experience and training. It is imperative that a new training philosophy be implemented to reduce the element of human error and accelerate the acquisition of higher-level judgment and decision-making skills.

FITS training recognizes the wide variety of technically advanced systems and their differences when compared to the relatively similar layout found in conventional cockpits.

- Within a type of system (e.g. different operations of GPS navigators)
- Within categories of advanced technology systems
    - Pilot Flight Displays (PFD)
    - Multi Function Displays (MFD)
    - Traffic Displays
    - Weather displays
    - Terrain Displays
    - Autopilots

FITS Training Goals

- Higher Order Thinking
    - Aeronautical Decision Making
    - Situational Awareness
    - Pattern Recognition (Emergency Procedures) and Decision Making
- Automation Competence
- Planning and Execution
- Procedural Knowledge
- Psychomotor (Hand-Eye Coordination) Skills

Section 2 -FITS Terminology/Definitions

Key Terms

Technically Advanced Aircraft (TAA)– A General Aviation aircraft that combines some or all of the following design features; advanced cockpit automation system (Moving Map GPS/ Glass Cockpit) for IFR/VFR flight operations, automated engine and systems management, and integrated auto flight/autopilot systems.

Light Turbine TAA- a jet or turboprop aircraft weighing 12,500 lbs or less and equipped with cabin pressurization, and conventional (non-swept) wings. This aircraft contains all the features of a Technically Advanced Aircraft and will be capable of operating in Class A airspace on normal mission profiles. A Light Jet TAA will be certified for Single-Pilot operation. (Note: Light TAA's are specifically defined as non-swept wing due to the significantly increased training load incurred when transitioning pilots to swept wing aircraft)

Scenario Based Training – SBT is a training system that uses a highly structured script of real-world experiences to address flight-training objectives in an operational environment. Such training can include initial training, transition training, upgrade training, recurrent training, and special training. The appropriate term should appear with the term "Scenario Based," e.g., "Scenario Based Transition Training," to reflect the specific application.

Single Pilot Resource Management (SRM)– The art and science of managing all resources (both on-board the aircraft and from outside sources) available to a single pilot (prior and during flight) to ensure the successful outcome of the flight is never in doubt.

Related Terms and Abbreviations

Aircraft Automation Management **–** The demonstrated ability to control and navigate an aircraft by means of the automated systems installed in the aircraft.

Automated Navigation leg **–** A flight of 30 minutes or more conducted between two airports in which the aircraft is controlled primarily by the autopilot and the on board navigation systems.

A ***VFR Automated Navigation Leg*** is flown on autopilot from 1,000 ft AGL on the departure until entry to the 45-degree leg in the VFR pattern.

An ***IFR Automated Navigation Leg*** is flown on autopilot from 500 ft AGL on departure until reaching the decision altitude (coupled ILS approach) or missed approach point (autopilot aided non-precision approach) on the instrument approach. If a missed approach is flown, it will be flown using the autopilot and on-board navigation systems.

Automation Competence- The demonstrated ability to understand and operate the automated systems installed in the aircraft.

Automation Surprise- The ability of automated systems to provide different cues to pilots when compared to the analog systems they replace, especially in time-critical situations.

Automation Bias **–** The relative willingness of the pilot to trust and utilize automated systems.

Candidate Assessment- A system of critical thinking and skill evaluations designed to assess a student's readiness to begin training at the required level.

Critical Safety Tasks/Events **–** Those mission related tasks/events that if not accomplished quickly and accurately may result in damage to the aircraft or loss of life.

Data link Situational Awareness Systems – Systems that feed real-time information to the cockpit on ***weather, traffic, terrain, and flight planning***. This information may be displayed on the PFD, MFD, or on other related cockpit displays.

Desired Pilot in Training (PT) Scenario Outcomes - The object of scenario-based training is a change in the thought processes, habits, and behaviors of the students during the planning and execution of the scenario. Since the training is student-centered, the success of the training is measured in the following desired student outcomes:

- ***Describe*** – **at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities.**
- ***Explain*** – **at the completion of the scenario, the PT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity.**
- ***Practice*** – **at the completion of the scenario, the student will be able to practice the scenario activity with little input from the CFI. The PT with coaching and/or assistance from the CFI will quickly correct minor deviations and errors identified by the CFI.**
- ***Perform*** - **at the completion of the scenario, the PT will be able to perform the activity without assistance from the CFI. Errors and deviations will be quickly identified and corrected by the PT. At no time will the successful completion of the activity be in doubt. "*Perform"* will be used to signify that the PT is satisfactorily demonstrating proficiency in traditional piloting and systems operation skills.**
- ***Manage/Decide*** - **at the completion of the scenario, the PT will be able to correctly gather the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. "*Manage/Decide"* will be used to signify that the PT is satisfactorily demonstrating acceptable SRM skills.**

Emergency Escape Maneuver- A maneuver (or series of maneuvers) performed manually or with the aid of the aircraft's automated systems that will allow a pilot to successfully escape from an unanticipated flight into Instrument Meteorological Conditions (IMC) or other life-threatening situations.

Mission Related Tasks- Those tasks required for safe and effective operations within the aircraft's certificated performance envelope.

Multi-Function Display MFD - Any display that combines primarily navigation, systems, and situational awareness information onto a single electronic display.

Primary Flight Display (PFD) – Any display that combines the primary six flight instruments, plus other related navigation and situational awareness information into a single electronic display.

Proficiency-Based Qualification- Aviation task qualification based on demonstrated performance rather than other flight time or experience.

Simulation- Any use of animation and/or actual representations of aircraft systems to simulate the flight environment. Student interaction with the simulation and task fidelity for the task to be performed are required for effective simulation.

Training Only Tasks – Training maneuvers that while valuable to the student's ability to understand and perform a mission related task, are not required for the student to demonstrate proficiency. However, certified flight instructors would be required to demonstrate proficiency in Training Only Tasks.

Section 3 - FITS TAA Instructor Training Philosophy

GOAL

FITS TAA Training is a new scenario-based approach to training pilots. It emphasizes the development of critical thinking and flight management skills, rather than traditional maneuver-based skills. The goal of this new training philosophy is the accelerated acquisition of higher-level decision-making skills. Such skills are necessary to prevent pilot- induced accidents in Technically Advanced Aircraft (TAA).

BACKGROUND

Previous training philosophies assumed that newly certified pilots generally remain in the local area until their aviation skills are refined. This is no longer true with the advent of Technically Advanced Aircraft (TAA). Offering superior avionics and performance capabilities, these aircraft travel faster and further than their predecessors. As a result, a growing number of entry-level pilots are suddenly capable of long distance/high speed travel—and its inherent challenges. Flights of this nature routinely span diverse weather systems and topography requiring advanced flight planning and operational skills. Advanced cockpits and avionics, while generally considered enhancements, require increased technical knowledge and finely tuned automation competence. Without these skills, the potential for an increased number of pilot-induced accidents is daunting. A new method of training is required to accelerate the acquisition of these skills during the training process.

Research has proven that learning is enhanced when training is realistic. In addition, the underlying skills needed to make good judgments and decisions are teachable. Both the military and commercial airlines have embraced these principles through the integration of Line Oriented Flight Training (LOFT) and Cockpit Resource Management (CRM) training into their qualification programs. Both LOFT and CRM lessons mimic real-life scenarios as a means to expose students to realistic operations and critical decision-making opportunities. The most significant shift in these programs has been the movement from traditional maneuver-based training to incorporate training that is scenario-based.

Maneuver-based training emphasizes the mastery of individual tasks or elements. Regulations, as well as Practical Test Standards (PTS), drive completion standards. Flight hours and the ability to fly within specified tolerances determines competence. The emphasis is on development of motor skills to satisfactorily accomplish individual maneuvers. Only limited emphasis is placed on decision-making. As a result, when the newly trained pilot goes on to fly in

the real-world environment, he or she is inadequately prepared to make crucial decisions.

Scenario Based Training (SBT) and Single Pilot Resource Management (SRM) are similar to LOFT and CRM training. However, each is tailored to the TAA pilot's training needs. These techniques use the same individual tasks that are found in Maneuver Based Training, but scripts them into scenarios that mimic real-life TAA cross-country travel. By emphasizing the goal of flying safely, the student correlates the importance of individual training maneuvers to safe mission accomplishment. In addition, the instructor continuously interjects "What If?" discussions as a means to provide the trainee with increased exposure to proper decision-making. Because the "What If?" discussions are in reference to the scenario, there is a clear connection between decisions made and the final outcome.

The "What If?" discussions are designed to accelerate the development of decision-making skills by posing situations for the student to consider. Once again, research has shown these types of discussions help build judgment and offset low experience.

Questions or situations posed by the instructor must be open-ended (rather than requiring only rote or one-line responses). In addition, the instructor guides the student through the decision process by:

1) Posing a question or situation that engages the student in some form of decision-making activity.
2) Examining the decisions made.
3) Exploring other ways to solve the problem.
4) Evaluating which way is best.

For example, when the student is given a simulated engine failure, the instructor might ask questions such as:

"What should we do now?" Or, "Why did you pick that place to land?" Or, "Is there a better choice?" Or, "Which place is the safest?" Or, "Why?"

These questions force the student to focus on the decision process. This accelerates the acquisition of improved judgment, which is simply the decision-making process resulting from experience. It is not innate. All of our life experiences mold the judgment tendencies we bring to our flight situations. By introducing decision-making opportunities into routine training lessons, we speed-up acquisition of experience, thus enhancing judgment. For further information, please reference "Aeronautical Decision Making" in the FAA Aviation Instructor Handbook.

MASTER INSTRUCTOR SYLLABUS

This document outlines the items to be included in the training of Certified Flight Instructors who will teach in TAA aircraft. It is a generic syllabus, and not intended to be specific to any particular TAA aircraft.

INSTRUCTOR TRAINING CURRICULUM

The Instructor Training Syllabus is written for a specific airplane and is based on the FITS Master Instructor Syllabus. It may be produced by any person, company, certificated flight instructor (CFI), training organization, manufacturer, or aviation publisher involved in the training of pilots in TAA aircraft. It can be very specific, or may only be an outline that refers to the Pilot's Operating Handbook or Approved Airplane Flight Manual.

Because the sequence of training may need to be altered to accommodate individual progress or special circumstances, the training syllabus should be flexible. Also, because complexity varies greatly from airplane to airplane, those who develop Instructor Training Syllabi may find it necessary to expand upon the information described herein. It is the responsibility of the training agency, certificated pilot training school, and/or instructor to ensure that all necessary training is accomplished.

Section 4 – Scenario Development Guide for Instructors in Training

Learning how to properly teach the FITS transition syllabus will enable an instructor to use the same principles and techniques to teach other approved courses in a TAA.

The FITS instructor training syllabus assumes that the Instructor in Training (IT) is already a proficient, Certified Flight Instructor who has prior aeronautical experience in operation of high performance and high technology type aircraft. Training time will vary depending on the instructor's prior aeronautical experience in these areas.

Scenario development is the key to the FITS Instructor Training Syllabus. The IT ideally conducts scenario planning with little assistance from the teaching instructor. The teaching instructor, with guidance from the syllabus, will act as a mentor and assist in establishing boundaries for the scenario. The teaching instructor will guide the planning process to ensure that learning outcomes are achieved in an orderly and efficient manner.

The IT and the Teaching Instructor will discuss the lesson syllabus and decide (in advance) the most likely destination for the out and back scenario. Initially, short VFR cross-countries should be used to get the IT comfortable with the sensation of flight, aircraft technology, and the airspace system. Later, VFR and IFR scenarios will explore every aspect of the aircraft's performance envelope, the airspace system, and automation management. The IT must be proficient in TAA. This allows them to concentrate on training specific to TAA, while combining proper teaching techniques for use when practicing flight instruction. If the Teaching Instructor determines the IT is not demonstrating this level of competency, the Teaching Instructor would discontinue the instructor training syllabus and satisfactorily complete the transition training syllabus prior to continuing the instructor training syllabus.

The TAA instructor must become completely versed in all the automated features of the aircraft. The instructor must also be able to teach students how to use such features. Failure to completely master and trust cockpit automation will severely reduce the effectiveness of TAA training.

Prior to completion of the instructor training syllabus, the IT should have taken the aircraft to its service ceiling, explored its speed envelope, and have flown it with full and near simulated minimum fuel conditions.

Although not required, the Teaching Instructor and IT may combine several lessons by performing a long, multi-leg trip into terrain and airspace unfamiliar to the IT. To be consistent with the FITS Transition Training Syllabus, the scenarios

should involve flights within increasingly complex airspace. By the end of the Instructor Training Syllabus, the IT will demonstrate effective teaching ability while maintaining mastery of the aircraft at all times.

Instructor in Training (IT) / Teaching Instructor Responsibilities

Pre-Scenario Planning - For Scenario Based Instruction to be effective; it is vital that the IT and the Teaching Instructor communicate the following information well in advance of the flight:

- Scenario destination(s)
- Desired student learning outcomes
- Desired level of IT performance
- Desired level of automation assistance
- Possible in-flight scenario changes (during later stages of the program, no pre-flight notification is required)

When an IT is conducting the Instructor Training Syllabus, the Teaching Instructor should make the situation as realistic as possible. This means the IT will know where they are going and what will transpire on the flight. While the actual flight may deviate from the original plan, it allows the IT to be placed in a realistic scenario.

Scenario Planning – Prior to the flight, the IT will brief the scenario to be planned. The Teaching Instructor will review the plan and offer guidance on how to make the lesson more effective. Discussion, in part, will reflect ways in which the IT can most effectively draw out a student's knowledge and decision processes. This enables the IT to analyze and evaluate the student's level of understanding.
After discussion with the Teaching Instructor, the IT will plan the flight to include:

- Route
- Destination(s)
- Weather
- Notams
- Desired student learning outcomes
- Possible alternate scenarios and emergency procedures

Pre-Flight Briefing – The IT will brief the Teaching Instructor on the flight scenario that he expects, which will include:

- Route, weather, and NOTAMS
- Accomplishment of desired training outcomes
- Emergency procedures and alternate scenarios
- SRM considerations
- Safety considerations

In-Flight – The IT will execute the scenario plan with as little intervention from the Training Instructor as possible. Obviously, the first few simple scenarios may require considerable Training Instructor input. The Training Instructor should provide situations that expose the IT to the differences of the TAA while exercising critical thinking skills.

For example, the Training Instructor may create a situation that requires the pilot to divert. In doing so, the IT will have to use the electronic engine monitoring system (located on the MFD) to determine fuel remaining and fuel burn rate. While identifying these differences, the IT will use critical thinking skills to determine the best course of action for the diversion. As the IT gains the experience required to demonstrate good SRM, a role reversal should occur allowing the IT to act as the instructor. The Training Instructor will act as the student learning to transition to the TAA.

Just as with the generic transition training syllabus, the instructor-training syllabus is student-centered, with the IT being considered the "student." However, at no time should the Training Instructor feel as though he or she cannot intervene in the name of safety or to ensure completion of the scenario. It may be useful to let the IT resolve lesser problems encountered before intervening or instructing. This example of self-directed, or guided learning, will assist the IT in learning how to build a student's confidence and poise. It also assists them in developing their own mental model. Instructors should demonstrate how to provide scenario- based instruction while not actually solving the problem for them. As discussed in Section 3, the IT must be taught to ask appropriate questions to clarify and/or challenge the student's thinking process.

Instructors in training must teach students to offer opinions and exercise sound judgment based on relevant criterion and available facts.

Post-Flight – The post-flight review should include a dialogue between the IT and the Training Instructor encompassing the flight scenario. Generally, the Training Instructor should lead the discussion with questions that generate reflective thinking on how the overall flight went. The Training Instructor should use this to assist in evaluating the IT's assessment skills, judgment, and decision making skills. Typically with a student who is being trained to fly a TAA, the discussion should be led by the student self-critiquing and the instructor enabling the student to solve the problems and drawing conclusions. Based on this analysis, the IT and Teaching Instructor should discuss methods for improvement, even on those items that were considered successful. In the beginning, the Teaching Instructor may take a leading role in the post-flight review demonstrating to the IT the proper method to conduct the post-flight. However, it is vital that the IT learns to identify performance deficiencies, problem solve, and administer corrective actions.

Scenario Grading - It is important that the IT understand that the object of scenario-based training in the generic transition training and instructor training syllabi is to affect a change in the thought processes, habits, and behaviors of the Pilot in Training (PT) or the Instructor in Training (IT).
The generic transition-training syllabus is student-centered, it is important that the IT understands that the success of the transition-training syllabus is measured in the desired student outcomes list below. These desired outcomes are not based on the traditional standards, but are based instead on the knowledge and skill level of the Pilot in Training (PT):

- **Describe – at the completion of the scenario, the pilot in training (PT) will be able to describe the physical characteristics and cognitive elements of the scenario activities.**
- **Explain – at the completion of the scenario, the PT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity.**
- **Practice – at the completion of the scenario, the student will be able to practice the scenario activity with little input from the CFI. The PT, with coaching and/or assistance from the CFI, will quickly correct minor deviations and errors identified by the CFI.**
- **Perform - at the completion of the scenario, the PT will be able to perform the activity without assistance from the CFI. Errors and deviations will be identified and corrected by the PT in an expeditious manner. At no time will the successful completion of the activity be in doubt. "Perform" will be used to signify that the PT is satisfactorily demonstrating proficiency in traditional piloting and systems operation skills.**
- **Manage/Decide - at the completion of the scenario, the PT will be able to correctly gather the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. "Manage/Decide" will be used to signify that the PT is satisfactorily demonstrating acceptable SRM skills.**

Section 5 - FITS Scenario Based Instructor Syllabus

LESSON 1
MASTER SYLLABUS - SCENARIO BASED INSTRUCTOR TRAINING

SCENARIO 1

PREREQUISITES **(all pre-training material will be developed by the training provider)**

a. Completion of pre-training packet corrected to 100%
b. Completion of pre-training evaluation corrected to 100%
c. Completion of post arrival/pre-flight ground training
d. Completion of manufacturer/vendor supplied cockpit automation training

INSTRUCTOR IN TRAINING PREPARATION

Review the following:

a. Normal operating procedures in the TAA POH
b. Airport information for departure and destination airports.
c. Route of flight information for both trips.
d. Aircraft and avionics systems display and procedures.

BRIEFING ITEMS

A. INITIAL INTRODUCTION:

IT should have a clear understanding of the Pilot in Command concept and how command is transferred. This should include a detailed pre-takeoff briefing procedure and format.

B. SINGLE PILOT RESOURCE MANAGEMENT (SRM)

1. Task management with Electronic Checklist procedures.
2. Automation management with systems to be used during this flight.
3. Radio procedures in relation to IT and Teaching Instructor.
4. Operating procedures in relation to IT and Teaching Instructor.

C. SAFETY

The following safety items should be briefed to all ITs:

1. Mid-air collision avoidance procedures
2. Taxi procedures
3. Personal minimums
4. Risk factors for the flight

SCENARIO ONE OBJECTIVE

The instructor in training (IT) will have the opportunity to re-enforce insights gained through ground training to begin the safe operation of TAA. They will also continue to enhance information management, risk management, and single pilot resource management.

This lesson will be conducted to an airport other than the departure airport. There must be adequate takeoff, air work, cruise, and descent time to introduce the IT to specific avionics, optimal display options, aircraft system equipment location, and normal operating procedures.

Preflight Planning, Engine-start, and Taxi

The IT will describe all preflight procedures, engine start-up, avionics set-up, taxi, and before-takeoff procedures. The preflight will be demonstrated with Training Instructor assistance, the Training Instructor should identify the differences they may encounter while teaching preflight procedures in a TAA. An example of this would be composite structure considerations, or ballistic parachute concerns. Any differences in engine start procedures should be discussed with consideration given to proper priming procedures and clearing the propeller area. While avionics setup will vary with each type of TAA flown, special consideration and thought shall be given to display usage in the GPS, MFD and PFD. A flow/checklist procedure should be followed to ensure completion of critical items. The basic functions of the avionics should be learned prior to flight using the manuals and simulation devices. For example, manufacturer or vendor-developed GPS training programs may be used. If the IT has not accomplished this, the Teaching Instructor must determine if the transition course should continue.

The Teaching Instructor will discuss the proper scanning technique to be used with the TAA avionics package. The IT will explain how to properly monitor fuel burn with the electronic engine monitoring system. Calculations for weight and balance and specific loading considerations will be discussed. It is imperative that the Teaching Instructor begin to change the thought patterns of the IT by discussing personal minimums on every lesson. The Teaching Instructor will intervene to direct the IT toward training techniques that may be used. The IT should be held to these personal minimums, and any change in personal minimums throughout training should be analyzed and evaluated.
The Teaching Instructor shall continue to discuss the differences found when transitioning to a TAA. (For example, while taxing the Cirrus SR22 the controls do not need to be deflected into the wind because of the spring cartridge.) MFD use for electronic engine monitoring and checking the governer system shall be discussed during run-up procedures.

The IT, in a non-congested environment, shall practice instruction on the criteria of a stabilized approach and the decision making process related to go-arounds. The Teaching Instructor shall lead the discussion by starting with a question such as, "How would you decide about conducting a go around, or what criteria would you use to assess a stabilized approach?" It should be noted that quite often the leading question will require additional questions to help the IT recognize his/her own thought processes.

Prior to Takeoff

Through guided discussion, the Teaching Instructor will review the optimal avionics displays to be used in the various phases of flight. Based on various weather (IMC/VMC) (IFR/VFR), traffic, airspace and route considerations, avionics displays will not necessarily be the same. The determination of proper display usage should be discussed. The Teaching Instructor shall discuss TAA considerations related to cockpit management and runway incursions. Traffic Situational Awareness Systems such as TCAS can help with runway incursions. Keeping vigilance, while looking outside the cockpit is vital in TAAs.

Electronic Checklist usage will be emphasized by the Teaching Instructor. He or she should guide the IT in discovering the differences related to the TAA aircraft.

Normal Operations

The IT will describe a normal takeoff and departure to a safe altitude. When established in the departure the autopilot will be engaged by the IT. Vigilance shall be maintained for traffic with the aid of Traffic Situational Awareness Systems such as TCAS/TCAD. Aircraft systems, avionics, and autopilot functions will be performed during cruise, descent, and normal landing phases of the flight by the IT (GPS nearest airport, direct to, flight plan and flight plan modification). The optimal display settings for cruise will be discussed. The autopilot's basic lateral and vertical modes should be used.

The Teaching Instructor will demonstrate the TAA's specific aerodynamics, power, engine, and proper display settings for normal operation. The IT shall perform flight at various airspeeds, control differences, recovery from various stalls, and steep turns while noting the differences from that of a non-TAA. While maneuvering in the TAA the trainer should correlate all maneuvers to real-world scenarios.

The IT shall conduct descent planning into a different airport using VNAV if available. The Teaching Instructor will demonstrate the first landing for the IT. The IT will perform various takeoff and landings until they are conducted within PTS standards, at which time a role reversal will be conducted so that the IT can demonstrate instructional knowledge. The IT should demonstrate common landing errors that might be encountered in a TAA. While maintaining safety,

the Training Instructor will simulate a go-around situation in which the IT will be expected to demonstrate judgment and decision making skills relating to go-arounds.

Role reversal will continue on return flight. An actual or simulated crosswind takeoff should be performed at the departure airport. A different route should be selected on this leg of the flight. The IT should continue to practice instructing on the MFD and GPS for the duration of the return trip. After the aircraft is established in cruise, the autopilot should be disengaged and the flight continued in the manual mode. Practice instruction should continue in the areas of aircraft systems and avionics. Multi-tasking and Single Pilot Resource Management should be brought up again at this time. While manually flying an airplane, the IT may become task saturated, and performance will decline. It is critical that the IT is aware of this common error, and the student should discuss ways to reduce or eliminate increased risks.

After Landing

Electronic checklist usage will be emphasized once the aircraft is clear of the active runway. The Teaching Instructor will lead a guided discussion on variations in TAA shutdown and securing procedures.

Scenario One

During the first scenario, the IT cannot be expected to master all specific learning objectives to the "Perform" level. However, based on the first flight and additional post flight study and critique, that level of performance can be expected during scenario two. Individual curriculum designers should feel free to select scenario tasks off the list provided based on the qualifications and TAA experience of the IT. For example, an IT with zero TAA experience will need to demonstrate proficiency to the perform or manage /decide level in each item listed below. An IT with 200 hours of TAA experience may need to demonstrate correct knowledge and instructional techniques in a sampling of the items listed below.

Scenario Activities	Scenario Sub Activities	Desired IT Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision making and risk management	1. Practice 2. Practice 3. Practice 4. Practice
Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming	1. Practice 2. Practice 3. Practice

	3. MFD Setup 4. PFD Setup	4. Practice
Engine Start and Taxi Procedures	1. Engine Start 2. Taxi 3. SRM/Situational Awareness	1. Practice 2. Practice 3. Practice
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. Aeronautical Decision Making (ADM) and Risk management	1. Practice 2. Practice 3. Practice
Takeoff	1. Normal Takeoff 2. Crosswind Takeoff 3. Aborted Takeoff 4. Soft Field/Short Field Takeoff 5. Situational Awareness 6. ADM and Risk Management	1. Practice 2. Practice 3. Practice 4. Practice 5. Practice 6. Practice
Climb procedures	1. Manual Climb 2. Autopilot Climb 3. Navigation programming 4. Power management 5. Situational Awareness, Task management, and ADM	1. Practice 2. Practice 3. Practice 4. Practice 5. Practice
Cruise Procedures	1. Lean Assist (if so equipped) 2. Best Power vs. Best Economy 3. Manual Cruise 4. Autopilot Cruise 5. Navigation programming 6. Automated navigation leg 7. Task Management, SA, and ADM	1. Practice 2. Practice 3. Practice 4. Practice 5. Practice 6. Practice 7. Practice
Control Practice and Instrument /Visual Crosscheck **Note: All items will be accomplished enroute during the scenario**	1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns	1. Practice 2. Practice 3. Practice
Low Speed Envelope **Note 1: Slow Flight and Stall Recovery may be accomplished enroute or in a practice area** **Note 2: Emphasis will be placed on stall prevention and recovery**	1. Configuration Changes and Slow Flight 2. Recovery from Power Off Stalls 3. Recovery from Power On Stalls 4. Stall prevention, SA, TM, and ADM 5. Steep Turns	1. Practice 2. Practice 3. Practice 4. Practice 5. Practice
GPS Operation and Programming	1. Direct-To 2. Nearest 3. Airport Information 4. Approach Select 5. Flight Plan	Practice

Autopilot Programming, Modes and Annunciations	1. Control Wheel Steering (if installed) 2. LNAV Programming 3. Vertical Speed and Altitude Hold 4. Navigation Modes 5. Coupled Approach Modes 6. Auto Trim Modes 7. Flight Director/PFD Interface	1. Practice 2. Practice 3. Practice 4. Practice 5. Practice 6. Explain 7. Practice
Avionics Operation	1. Pilot Flight Display (if installed 2. MFD Normal Operation a. Setup Pages b. Navigation Mode c. Checklist Mode 3. Abnormal/Emergency Modes 4. EHSI Operation	1. Practice 2. Practice 3. Practice 4. Practice
Avionics Interface	1. Identification of Data/Power sources 2. Identification of PFD Failure Modes 3. Aircraft Automation management	1. Explain 2. Explain 3. Explain
Data link Situational Awareness Systems and Additional Avionics Setup (NOTE: some or all of these systems may not be installed or available in the aircraft)	1. Data link Weather Setup and operation 2. Data link Traffic Setup and operation 3. Data link Terrain Display and Warning Setup and operation 4. Data link Flight Planning and Traffic Control (CNS) Setup and operation	1. Explain/Practice 2. Practice 3. Explain/Practice 4. Explain/Practice
Emergency Escape Maneuvers, Emergency Procedures/Recovery from Unusual Attitudes and Upsets/Use of CAPS (Cirrus Aircraft Only)	1. PFD Unusual Attitude recovery 2. Backup Instrument Unusual Attitude recovery 3. Autopilot Unusual Attitude recovery 4. CAPS 5. Engine failure/Emergency descent 6. Risk Management and decision making	1. Practice 2. Practice 3. Explain/Practice 4. Explain/Practice (simulated) 5. Practice 6. Practice
Descent Planning and Execution	1. Automation Management 2. VNAV Planning 3. Navigation programming 4. Manual Descent 5. Autopilot descent 6. TA, SA, CFIT Avoidance	1. Practice 2. Practice 3. Practice 4. Practice 5. Practice 6. Practice
Instrument Approach procedures (IFR Rated Pilot)	1. Manual ILS 2. Coupled ILS 3. Manual VOR 4. Manual GPS	1. Practice 2. Practice 3. Practice 4. Practice

	5. Autopilot Assisted VOR/GPS VNAV Approach 6. Manual Missed Approach 7. Autopilot Assisted Missed Approach 8. Procedure Turn 9. Holding 10. Task management and decision making	5. Practice 6. Practice 7. Practice 8. (Optional) Practice 9. (Optional) Practice 10. Manage / Decide
Landing	1. Before landing procedures 2. IFR Landing Transition 3. Normal Landing 4. Soft and Short field landing 5. Partial Flap Landing 6. Zero Flap landing 7. Crosswind landing 8. Balked landing and Go-Around 9. ADM and SA	1. Practice 2. Practice 3. Practice 4. Practice 5. (Optional) Practice 6. (Optional) Practice 7. Practice 8. Practice 9. Practice
Aircraft Shutdown and Securing procedure	1. Aircraft Shutdown and Securing Checklist 2. Aircraft Towing, Ground Handling, and Tie down	1. Practice 2. Explain/Practice

LESSON 2

MASTER SYLLABUS - SCENARIO BASED INSTRUCTOR TRAINING

PREREQUISITES (all materials developed by the manufacturer/training provider)

a. Completion of Assigned Pre-Flight Written Materials
b. Completion of Scenario Training Ground Briefing

INSTRUCTOR IN TRAINING PREPARATION

Review the following:

a. Previous Lesson
b. Areas of weakness
c. Prior Planned Flight profile using scenario assigned by Training Instructor
d. Normal operating procedures in the TAA POH
e. Airport information for departure and destination airports.
f. Aircraft and avionics systems display and procedures.

BRIEFING ITEMS

A. INITIAL INTRODUCTION:
   a. Weather
   b. Flight profile
   c. Command transfer and pre-takeoff briefing
   d. Personal minimums

B. SRM
   a. ADM
   b. Task, Automation and Risk Management
   c. SA and CFIT awareness

C. SAFETY
   a. Mid-air collision avoidance procedures
   b. Appropriate NOTAMS
   c. Airport diagrams and taxi procedures
   d. Emergency procedures

SCENARIO TWO OBJECTIVE

The IT will correlate information introduced in Scenario One and will be introduced to abnormal and emergency procedures in flight. The IT will also demonstrate automation competency in a TAA while conducting a cross country-based scenario.

SCENARIO 2

This lesson will be the first introduction to a planned VFR and IFR cross country scenario involving travel to numerous airports in a TAA. The lesson will

emphasis the IT teaching avionics interface and the use of automation while the Teaching Instructor introduces abnormal and emergency procedures in the National Airspace System. The Teaching Instructor shall continue to ask questions that evaluates the IT's judgment and decision making skills while teaching, such as, "During this emergency, teach me how to prioritize what must be accomplished."

This cross country-based scenario should be at least 3 legs and conducted in a manner in which the IT has ample time to demonstrate the use of an electronic checklist, enroute procedures, and system malfunctions or emergencies. The IT will use the autopilot for most of this flight to gain proficiency in operating the various avionics in the aircraft, and enable him or her to teach while flying the aircraft.

Prior to takeoff

The IT should plan their profile and perform all preflight procedures, engine start-up, avionics set-up, taxi, and before-takeoff procedures. The IT shall note the differences between a TAA and a traditional aircraft. The IT should be able to demonstrate instructional knowledge on runway incursions, high wind taxi situations, abnormal indications, and corrective actions related to the unique functions of the TAA. The Teaching Instructor will begin to be more a facilitator of learning than the end authority of all subject matter. The IT shall begin to provide more of the questions that continue to evaluate the decision-making skills and judgment. The IT shall lead the discussion on the risk factors that include, but are not limited to, weather consideration, fuel burn, and personal limitations in relation to this flight lesson scenario. The Teaching Instructor will assist the IT with the appropriate insights related to the TAA aircraft. Questions shall be used to facilitate that discussion. The Training Instructor shall take note of these items discussed to reinforce instructional techniques during the post-flight discussion.

The IT should be able to select and teach the proper start-up procedure. Emphasis should be placed on teaching how to identify the proper start, taxi, and run up procedures and the differences based on comparison to traditional aircraft. Questions such as, "How does this TAA compare/contrast with aircraft you've previously flown?" The IT will teach the proper set up of the avionics while continuously identifying differences. The Teaching Instructor shall also evaluate the IT's fundamental knowledge of the avionics and practical use given the flight scenarios (IFR/VFR).

The IT will use instructional techniques to lead the discussion on avionics setup to include MFD – checklist usage and performance information, PFD navigation set up, appropriate display for the VFR or IFR leg being conducted, and use of GPS display(s).

Normal Operations

The IT should practice giving instruction while conducting a normal takeoff and departure to a safe altitude. When established in the departure phase, the autopilot will be engaged and the IT shall demonstrate the use of NAV and any other special lateral navigation features, GPS navigation, and flight plan pages during the first leg. On GPS #2, if available, the most efficient way to edit the flight plan should be emphasized. The IT will continue demonstrating instructional knowledge on use of electronic checklists, adjusting the MFD display(s) appropriately.

Upon reaching cruise altitude, the Teaching Instructor shall ensure the IT has properly established the autopilot navigation mode using the GPSS (GPS Steer) function. The Teaching Instructor should ask questions such as, "What other solutions could be used in place of GPSS functions?" while the IT practices giving instruction. The IT will also be asked to demonstrate the TAA leaning procedures using the MFD. All pre-setting cruise functions shall be discussed.

While in cruise, the IT will be required to demonstrate understanding of isolated system failures. The Teaching Instructor shall not unrealistically overload the IT, but instead will develop a realistic scenario. While normally reliable, electrically related failures and malfunctions are a common avenue for discussion based on the complexity of the electrical systems of TAA.

During at least one VFR leg, the Teaching Instructor shall present the IT with a scenario that has no single correct answer, such as a maximum endurance problem. The IT will decide if the route should be changed. In addition, the IT must be allowed to follow through with previous decisions so that an outcome may be determined. If the Teaching Instructor feels the situation is leading to an unsafe condition, the scenario shall be terminated. Examples of scenarios that require the IT to demonstrate instructional knowledge include:

- Icing scenario
- Rising terrain/Lowering ceiling
- Diversion
- Electrical failure
- Abnormal engine readings
- Minimum fuel / Maximum endurance

At least one IFR leg shall involve a loss of the PFD. While the goal is not to overload the IT, it should be noted that scenarios beginning with a chain of events is optimal. For example, a cabin fire may also result in an emergency descent and forced landing.

An unexpected low-fuel situation may result in the recalculation of fuel, conservation of fuel, and diversion procedures involving correlative knowledge on the interface between the autopilot, MFD, PFD, and the GPS.

During the IFR leg(s), the IT shall also conduct a minimum of two instrument approaches. The course assumes the pilot is proficient and the lesson should focus on TAA differences, automation interface, and training techniques when conducting instrument procedures, not basic skills and IFR procedures. The Training Instructor must continue to facilitate the discussion of the differences when transitioning a pilot from "steam gage" to glass, and how teaching a TAA differs. The Teaching Instructor shall make every effort to provide the IT with the most variations in airspace, especially complex airspace in which the IT has little experience.

The IT should plan and conduct descents from different altitudes on each leg and explain pattern transition. Enough landings should be accomplished to provide the IT with the knowledge and skill to perform as an instructor. A soft field takeoff should be performed with a manual climb, and the IT should expect to continue onto the next leg. At an altitude that would allow the TAA to return for landing and a simulated engine failure's final result would be a power-off landing at the airport, the IT shall practice instruction while conducting the engine failure.

Each leg will emphasis the IT's use of critical thinking skills. On each leg, the Teaching Instructor will introduce different emergencies and situations that will reinforce the IT's correlation of systems interface and related corrective actions. The best scenario is one that sets off a chain of events and decisions. The IT should have to base each decision on previously made decisions, unless the Teaching Instructor determines it would compromise safety.

<u>After Landing</u>

The IT should lead the discussion on checklist usage once <u>clear of the active runway.</u>

The IT should also lead a discussion of the flight; analyzing possible alternative decisions which could have been made to increase proficiency and safety.

The Teaching Instructor should be cautioned not to give the IT the answers, but instead guide them in discovering the alternatives, options, and factors they did not consider.

<u>Scenario Two</u>

Scenario Activities	Scenario Sub Activities	Desired IT Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision making and risk management	1. Perform 2. Perform 3. Perform 4. Manage/Decide

Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming 3. MFD Setup 4. PFD Setup	1. Perform 2. Perform 3. Perform 4. Perform
Engine Start and Taxi Procedures	1. Engine Start 2. Taxi 3. SRM/Situational Awareness	1. Perform 2. Perform 3. Manage/Decide
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. Aeronautical Decision Making and Risk management	1. Perform 2. Manage/Decide 3. Manage/Decide
Takeoff	1. Normal Takeoff 2. Crosswind Takeoff 3. Aborted Takeoff 4. Soft Field/Short Field Takeoff 5. Situational Awareness 6. ADM and Risk Management	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide 6. Manage/Decide
Climb procedures	1. Manual Climb 2. Autopilot Climb 3. Navigation programming 4. Power management 5. Situational Awareness, Task management, and ADM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Cruise Procedures	1. Lean Assist (if so equipped) 2. Best Power vs. Best Economy 3. Manual Cruise 4. Autopilot Cruise 5. Navigation programming 6. Automated navigation leg 7. Task Management, SA, and ADM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Control Performance Instrument /Visual Crosscheck **Note: All items will be accomplished enroute during the scenario**	1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns	1. Perform 2. Perform 3. Perform
Low Speed Envelope **Note 1: Slow Flight and Stall Recovery may be accomplished enroute or in a practice area** **Note 2: Emphasis will be placed on stall prevention and recovery**	1. Configuration Changes and Slow Flight 2. Recovery from Power Off Stalls 3. Recovery from Power On Stalls 4. Stall prevention, SA, TM, and ADM 5. Steep Turns	1. Perform 2. Perform 3. Perform 4. Manage/Decide 5. Perform
GPS Operation and Programming	1. Direct-To 2. Nearest	Perform

	3. Airport Information 4. Approach Select 5. Flight Plan	
Autopilot Programming, Modes and Annunciations	1. Control Wheel Steering (if installed) 2. LNAV Programming 3. Vertical Speed and Altitude Hold 4. Navigation Modes 5. Coupled Approach Modes 6. Auto Trim Modes 7. Flight Director/PFD Interface	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Explain 7. Perform
Avionics Operation	1. Pilot Flight Display (if installed 2. MFD Normal Operation a. Setup Pages b. Navigation Mode c. Checklist Mode 3. Abnormal/Emergency Modes 4. EHSI Operation	1. Perform 2. Perform 3. Perform 4. Perform
Avionics Interface	1. Identification of Data/Power sources 2. Identification of PFD Failure Modes 3. Aircraft Automation management	1. Explain 2. Explain 3. Explain
Data link Situational Awareness Systems and Additional Avionics Setup (NOTE: some or all of these systems may not be installed or available in the aircraft)	1. Data link Weather Setup and operation 2. Data link Traffic Setup and operation 3. Data link Terrain Display and Warning Setup and operation 4. Data link Flight Planning and Traffic Control (CNS) Setup and operation	1. Explain/Practice 2. Perform 3. Explain/Practice 4. Explain/Practice
Emergency Escape Maneuvers, Emergency Procedures/Recovery from Unusual Attitudes and Upsets/Use of CAPS (Cirrus Aircraft Only)	1. PFD Unusual Attitude recovery 2. Backup Instrument Unusual Attitude recovery 3. Autopilot Unusual Attitude recovery 4. CAPS 5. Engine failure/Emergency descent 6. Risk Management and decision making	1. Perform 2. Perform 3. Explain/Practice 4. Explain/Practice (simulated) 5. Perform 6. Manage/Decide
Descent Planning and Execution	1. Automation Management 2. VNAV Planning 3. Navigation programming 4. Manual Descent 5. Autopilot descent 6. TA, SA, CFIT Avoidance	1. Manage/Decide 2. Perform 3. Perform 4. Perform 5. Perform 6. Manage/Decide
Instrument Approach	1. Manual ILS	1. Perform

procedures (IFR Rated Pilot)	2. Coupled ILS 3. Manual VOR 4. Manual GPS 5. Autopilot Assisted VOR/GPS VNAV Approach 6. Manual Missed Approach 7. Autopilot Assisted Missed Approach 8. Procedure Turn 9. Holding 10. Task management and decision making	2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. (Optional)Perform 9. (Optional) Perform 10. Manage / Decide
Landing	1. Before landing procedures 2. IFR Landing Transition 3. Normal Landing 4. Soft and Short field landing 5. Partial Flap Landing 6. Zero Flap landing 7. Crosswind landing 8. Balked landing and Go-Around 9. ADM and SA	1. Perform 2. Perform 3. Perform 4. Perform 5. (Optional) Perform 6. (Optional) Perform 7. Perform 8. Perform 9. Manage/decide
Aircraft Shutdown and Securing procedure	1. Aircraft Shutdown and Securing Checklist 2. Aircraft Towing, Ground Handling, and Tie down	1. Perform 2. Explain/Practice

LESSON 3
MASTER SYLLABUS - SCENARIO BASED INSTRUCTOR TRAINING

PREREQUISITES (all materials developed by the manufacturer/training provider)

a. Completion of Assigned Pre-Flight Written Materials
b. Completion of Scenario Training Ground Briefing

INSTRUCTOR IN TRAINING PREPARATION Review the following:

a. Previous Lesson
b. Areas of weakness
c. Prior Planned Flight profile using scenario assigned by Teaching Instructor
d. Normal operating procedures in the TAA POH
g. Airport information for departure and destination airports.
h. Aircraft and avionics systems display and procedures.

BRIEFING ITEMS

D. INITIAL INTRODUCTION:
   a. Weather
   b. Flight profile
   c. Command transfer and pre-takeoff briefing
   d. Personal minimums

E. SRM
   a. ADM
   b. Task, Automation and Risk Management
   c. SA and CFIT awareness

F. SAFETY
   a. Mid-air collision avoidance procedures
   b. Appropriate NOTAMS
   c. Airport diagrams and taxi procedures
   d. Emergency procedures
   e. Proper transfer of controls

SCENARIO THREE OBJECTIVE

The IT, while teaching the Instructor in a role reversal situation, shall demonstrate proficiency in all critical action emergency procedures and a representative cross section of non-critical action emergency procedures described in the TAA POH. The Teaching Instructor shall determine if the IT has acquired the knowledge and skill level that meets or exceeds CFI and CFII PTS in a TAA. Emphasis shall not be placed on performing every situation, but by the IT's ability to safely act as the instructor while using **critical thinking skills**.

SCENARIO 3
ROLE REVERSAL

This lesson shall be conducted as a multiple leg VFR and IFR cross country in which the IT alternates control of the aircraft with the Teaching Instructor on each leg. Positive transfer of control shall be demonstrated at all times. For those emergencies and specific maneuvers, if the IT is controlling the aircraft, he shall act as if he is demonstrating the maneuver to the Teaching Instructor for the first time, and the Teaching Instructor has been briefed on the maneuver but has never conducted that particular maneuver. Those times the Teaching Instructor is controlling the aircraft, the IT shall act as if the Teaching Instructor is conducting the particular maneuver for the first time and it has been demonstrated once.

The IT shall plan the cross-country flight from the position of a flight instructor developing a scenario-based lesson to conduct with a student in a TAA.

Prior to the lesson, the IT shall brief the Teaching Instructor on all aspects of the scenario. This cross country-based scenario should be at least 3 legs and conducted in a manner that emphasizes judgment and decision making in ambiguous situations.

Prior to Takeoff

The IT should practice giving instruction during all preflight, engine start-up, avionics set-up, taxi, and before-takeoff procedures. The Teaching Instructor, without compromising safety, shall demonstrate improper use of systems and equipment. The IT should practice asking questions that facilitate the use of critical thinking skills. The IT should be able to skillfully teach the avoidance of runway incursions, high wind taxi situations, and abnormal indications and corrective actions. The IT should lead the Teaching Instructor in a discussion of risk factors that include, but are not limited to, weather, fuel burn, and personal limitations. The IT will be expected to begin using questions that facilitate the use of critical thinking skills. The Teaching Instructor will note appropriate insights related to the TAA aircraft missed by the IT during the debrief.

Normal Operations

While acting as the student, the Teaching Instructor shall facilitate the IT's use of judgment and aeronautical decision making as an instructor.

While this lesson will re-enforce the items previous learned; the Teaching Instructor will evaluate if the IT has the instructional knowledge needed to properly teach a student in that specific TAA.

On the IFR leg, the Teaching Instructor indirectly guides the IT so that an instrument approach is performed, (as appropriate an ILS or GPS) at the first airport to a full stop landing. The VFR pilot scenario should be indirectly guided to perform a GPS assisted entry and approach procedure to a full stop landing.

On a VFR leg, the Teaching Instructor shall indirectly guide the IT so that a normal takeoff and autopilot-assisted departure can be demonstrated. In cruise, the Teaching Instructor acting as the student, will perform the improper procedures for a significant engine power loss, control surface failures, and a complete electrical failure. The IT's reaction as the "instructor" will then be evaluated.

The IT shall provide instruction on unusual attitude recovery, complete engine failure, and an emergency descent and a diversion to the home airport.

The IT, while practicing instruction, shall perform a GPS assisted VFR entry into the downwind pattern with an engine failure in the pattern, followed by a power-off landing to a full stop.

<u>After Landing</u>

With the IT acting as the instructor, a thorough debriefing of the entire flight must be conducted. A review of the IT's instructional decisions will lead to a discussion of how they could have been done differently.

Scenario Three

During Scenario three, the grades of "Perform" and "Manage/Decide" will be granted only if the IT can successfully instruct to that level. Some leeway should be given to learning objectives that do not compromise safety. For instance, if the IT cannot perform a specific GPS function in the air but successfully explains and demonstrates it during the post-flight critique, the learning objective will be considered met.

Scenario Activities	Scenario Sub Activities	Desired IT Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision making and risk management	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Manage/Decide
Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming 3. MFD Setup 4. PFD Setup	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Instruct/Perform
Engine Start and Taxi	1. Engine Start	1. Instruct/Perform

Procedures	2. Taxi 3. SRM/Situational Awareness	2. Instruct/Perform 3. Manage/Decide
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. Aeronautical Decision Making and Risk management	1. Instruct/Perform 2. Manage/Decide 3. Manage/Decide
Takeoff	1. Normal Takeoff 2. Crosswind Takeoff 3. Aborted Takeoff 4. Soft Field/Short Field Takeoff 5. Situational Awareness 6. ADM and Risk Management	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Instruct/Perform 5. Manage/Decide 6. Manage/Decide
Climb procedures	1. Manual Climb 2. Autopilot Climb 3. Navigation programming 4. Power management 5. Situational Awareness, Task management, and ADM	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Instruct/Perform 5. Manage/Decide
Cruise Procedures	1. Lean Assist (if so equipped) 2. Best Power vs. Best Economy 3. Manual Cruise 4. Autopilot Cruise 5. Navigation programming 6. Automated navigation leg 7. Task Management (TM), SA, and ADM	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Instruct/Perform 5. Instruct/Perform 6. Instruct/Perform 7. Manage/Decide
Control Instruct/Performance Instrument /Visual Crosscheck **Note: All items will be accomplished enroute during the scenario**	1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform
Low Speed Envelope **Note 1: Slow Flight and Stall Recovery may be accomplished enroute or in a practice area** **Note 2: Emphasis will be placed on stall prevention and recovery**	1. Configuration Changes and Slow Flight 2. Recovery from Power Off Stalls 3. Recovery from Power On Stalls 4. Stall prevention, SA, TM, and ADM 5. Steep Turns	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Manage/Decide 5. Instruct/Perform
GPS Operation and Programming	1. Direct-To 2. Nearest 3. Airport Information 4. Approach Select 5. Flight Plan	Instruct/Perform
Autopilot Programming, Modes and Annunciations	1. Control Wheel Steering (if installed) 2. LNAV Programming	1. Instruct/Perform 2. Instruct/Perform

	3. Vertical Speed and Altitude Hold 4. Navigation Modes 5. Coupled Approach Modes 6. Auto Trim Modes 7. Flight Director/PFD Interface	3. Instruct/Perform 4. Instruct/Perform 5. Instruct/Perform 6. Explain 7. Instruct/Perform
Avionics Operation	1. Pilot Flight Display (if installed) 2. MFD Normal Operation a. Setup Pages b. Navigation Mode c. Checklist Mode 3. Abnormal/Emergency Modes 4. EHSI Operation	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Instruct/Perform
Avionics Interface	1. Identification of Data/Power sources 2. Identification of PFD Failure Modes 3. Aircraft Automation management	1. Explain 2. Explain 3. Explain
Data link Situational Awareness Systems and Additional Avionics Setup (NOTE: some or all of these systems may not be installed or available in the aircraft)	1. Data link Weather Setup and operation 2. Data link Traffic Setup and operation 3. Data link Terrain Display and Warning Setup and operation 4. Data link Flight Planning and Traffic Control (CNS) Setup and operation	1. Explain/Practice 2. Instruct/Perform 3. Explain/Practice 4. Explain/Practice
Emergency Escape Maneuvers, Emergency Procedures/Recovery from Unusual Attitudes and Upsets/Use of CAPS (Cirrus Aircraft Only)	1. PFD Unusual Attitude recovery 2. Backup Instrument Unusual Attitude recovery 3. Autopilot Unusual Attitude recovery 4. CAPS 5. Engine failure/Emergency descent 6. Risk Management and decision making	1. Instruct/Perform 2. Instruct/Perform 3. Explain/Practice 4. Explain/Practice (simulated) 5. Instruct/Perform 6. Manage/Decide
Descent Planning and Execution	1. Automation Management 2. VNAV Planning 3. Navigation programming 4. Manual Descent 5. Autopilot descent 6. TA, SA, CFIT Avoidance	1. Manage/Decide 2. Instruct/Perform 3. Instruct/Perform 4. Instruct/Perform 5. Instruct/Perform 6. Manage/Decide
Instrument Approach procedures (IFR Rated Pilot)	1. Manual ILS 2. Coupled ILS 3. Manual VOR 4. Manual GPS 5. Autopilot Assisted VOR/GPS VNAV Approach	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Instruct/Perform 5. Instruct/Perform

	6. Manual Missed Approach 7. Autopilot Assisted Missed Approach 8. Procedure Turn 9. Holding 10. Task management and decision making	6. Instruct/Perform 7. Instruct/Perform 8. (Optional) Instruct/Perform 9. (Optional) Instruct/Perform 10. Manage / Decide
Landing	1. Before landing procedures 2. IFR Landing Transition 3. Normal Landing 4. Soft and Short field landing 5. Partial Flap Landing 6. Zero Flap landing 7. Crosswind landing 8. Balked landing and Go-Around 9. ADM and SA	1. Instruct/Perform 2. Instruct/Perform 3. Instruct/Perform 4. Instruct/Perform 5. (Optional) Instruct/Perform 6. (Optional) Instruct/Perform 7. Instruct/Perform 8. Instruct/Perform 9. Manage/decide
Aircraft Shutdown and Securing procedure	1. Aircraft Shutdown and Securing Checklist 2. Aircraft Towing, Ground Handling, and Tie down	1. Instruct/Perform 2. Explain/Practice

Section 6 - FITS Master Learning Outcomes List

TAA 01	**Single Pilot Resource Management (SRM)**	
Unit Objective – Demonstrates safe and efficient operations by adequately managing all available resources.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Task Management (TM)	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.	Prioritize and select the most appropriate tasks (or series of tasks) to ensure successful completion of the training scenario.
2. Automation Management (AM)		Program and utilize the most appropriate and useful modes of cockpit automation to ensure successful completion of the training scenario.
3. Risk Management (RM) and Aeronautical Decision Making (ADM)		Consistently make informed decisions in a timely manner based on the task at hand and a thorough knowledge and use of all available resources.
4. Situational Awareness (SA)		Be aware of all factors such as traffic, weather, fuel status, aircraft mechanical condition, and pilot fatigue level that may have an impact on the successful completion of the training scenario.
5. Controlled Flight Into Terrain (CFIT) Awareness		Understand, describe, and apply techniques to avoid CFIT encounters: a. During inadvertent encounters with Instrument Meteorological Conditions during VFR flight b. During system and navigation failures and physiological incidents during IFR flight

TAA 02	Flight Planning	
Unit Objective – Develop thorough and successful preflight habit patterns for flight planning, performance, weight and balance, and normal and emergency single pilot resource management.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Flight Training Scenario Planning	Preflight planning	a. Review the required elements of the appropriate flight training scenario. b. Decide on the optimum route and sequence of events to accomplish all required tasks. c. Obtain all required charts and documents. d. Obtain and analyze an FAA approved weather briefing appropriate to the scenario to be flown. e. File a flight plan (VFR/IFR) for the scenario to be flown.
2. Weight and Balance and Aircraft Performance Computation	a. Classroom training b. Preflight planning	Perform weight and balance and performance computations for the specific training scenario to be flown without error.
3. Preflight SRM Briefing	Preflight planning	a. Orally review in specific terms all aspects of the flight scenario. b. Identify possible emergency and abnormal procedures relevant to the scenario and describe successful SRM strategies to deal with them.
4. Decision Making and Risk Management	a. Pre-Arrival-eLearning b. Classroom Training c. All phases of flight planning and flight	a. Make sound decisions based on a logical analysis of factual information, aircraft capability, and pilot experience and skill. b. Continuously critique the success of the flight scenario. c. Adjust the training scenario to maintain flight safety at all times.

TAA 03	Normal Preflight & Cockpit Procedures

Unit Objective – Aircraft familiarization, checklists, cockpit procedures and PFD/GPS/MFD and autopilot operation.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal Pre-takeoff Checklist procedures	a. Pre-arrival – eLearning b. Pre-flight briefing c. Actual aircraft pre-flight	a. Perform normal exterior inspection by reference to the written checklist. b. Perform normal interior preflight inspection, engine start, taxi, before takeoff checklists by reference to the MFD. c. Perform all checklists in the proper sequence and without error.
2. PFD/MFD/GPS Autopilot Programming	a. Pre-arrival – eLearning b. Pre-flight briefing c. Actual aircraft pre-flight	a. Perform PFD/AHRS initialization. b. Perform autopilot pre-flight checks. c. Program all the GPS and MFD according to the Cirrus POH for the specific training scenario to be flown.

TAA 04	**Engine Start and Taxi Procedures**	
Unit Objective – Demonstrate the proper Engine Start and Taxi Procedures for the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Engine Start	a. Pre-arrival – eLearning b. Actual aircraft pre-flight	a. Demonstrate the correct procedures for engine start under all conditions. b. Demonstrate the correct emergency procedures associated with engine start. c. Successfully start the engine.
2. Taxi	a. Pre-arrival – eLearning b. Actual aircraft pre-flight	a. Understand the proper technique to control the aircraft using differential braking and power. b. Successfully taxi the aircraft.
3. SRM/Situational Awareness	a. Pre-arrival – eLearning b. Pre-flight briefing c. Actual aircraft pre-flight	a. Understand the capability of the MFD/GPS to aid in low visibility/congested airport taxi situations. b. Demonstrate the proper visual clearing techniques during all taxi operations.

TAA 05	**Before Takeoff Checks**

Unit Objective – demonstrate the proper pre-takeoff procedures for the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal and Abnormal Indications	a. Pre-arrival – eLearning b. Actual aircraft pre-flight	a. Complete all Pre- Takeoff checklist items correctly and in the proper sequence. b. Identify normal and abnormal systems indications using the MFD and the POH.
2. Aircraft Automation Management	a. Pre-arrival – eLearning b. Actual aircraft pre-flight	Correctly configure and program the PFD /MFD /HSI /GPS/ Autopilot for the departure.
3. Aeronautical Decision Making/Risk Management		Make the correct go / no-go decision based on the status of the aircraft, pilot, and the weather.

TAA 06	**Takeoff**	
Unit Objective – demonstrate the proper takeoff procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal takeoff	a. Pre-Flight briefing b. In-Flight from lineup on the runway through flap reduction	Perform a normal takeoff within the PTS standards.
2. Crosswind takeoff		Perform a crosswind takeoff within the PTS standards.
3. Aborted takeoff		Perform the aborted takeoff procedure within the PTS standard.
4. Soft Field/Short field Takeoff		Perform a Soft Field/Short Field Takeoff within the PTS standards.
5.Situational Awareness		a. Identify traffic, systems failures, and other developing situations that might prompt the performance of an aborted takeoff. b. Verbalize and prioritize those situations present during any given takeoff.
6.Aeronautical Decision Making/Risk management		Decide to continue or abort any given takeoff based on the actual situation or a simulated scenario created by the instructor.

TAA 07	**Climb Procedures**

Unit Objective – demonstrate the proper climb procedures for the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Manual Climb	a. Pre-Flight briefing b. In-Flight from flap retraction until after initial level-off at cruise altitude	a. Perform a hand flown climb and level-off within the PTS standards. b. Establishes pitch within the PTS standards.
2. Autopilot Climb		a. Perform an autopilot flown climb and level-off within the PTS standards. b. Establishes pitch attitude within the PTS standards.
3. Navigation Programming		Program the GPS/MFD to comply with the flight planned course and all ATC clearances.
4. Power management		Set appropriate power/engine leaning settings by reference to the MFD.
5. Situational Awareness, Task Management, and Decision Making		a. Identify all traffic, hazardous terrain, and potentially hazardous situation as they occur by reference to visual clearing and the MFD (if available and optioned). b. Perform all required in-cockpit tasks in such a manner that visual clearing is not impacted negatively. c. Make timely decisions based on information obtained visually, by radio, or by aircraft automation equipment.

TAA 08	**Cruise procedures**	
Unit Objective – demonstrate the proper cruise procedures for the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Lean Assist MFD 2. Best Power vs. Best Economy	a. Pre-arrival – eLearning b. In Cruise Flight	Lean the engine using the Lean Assist procedures and the MFD.
3. Manual Cruise	. In Cruise Flight	a. Perform hand flown manual cruise within the PTS standards. b. Maintain altitude, within the PTS standards.
4. Autopilot Cruise		a. Perform an autopilot assisted cruise within the PTS. standards (for manual cruise) b. Maintain altitude within the PTS standards. c. Demonstrate the aircraft reaction to course changes programmed into the GPS/MFD.
5. Navigation Programming		Program flight plan changes into the GPS.
6. Automated Navigation Leg		a. In VFR conditions conduct a navigation leg of 30 minutes or more to a different airfield by use of the autopilot beginning at 1,000 ft AGL on departure and terminating autopilot use just prior to entry to the VFR pattern. b. In IFR conditions (or simulated IFR) conduct a navigation leg of 30 minutes or more to a different airfield by use of the autopilot beginning at 500 ft AGL on departure and terminating autopilot use at the decision altitude or missed approach point as applicable. If a missed approach is flown it will be flown by use of the autopilot.

7. Task Management, Situational Awareness, and Decision making		terrain, and potentially hazardous situations as they occur by reference to visual clearing and the MFD (if available and optioned) b. Perform all required in-cockpit tasks in such a manner that visual clearing is not impacted negatively c. Make timely decisions based on information obtained visually, by radio, or by aircraft automation equipment

TAA 09	**Control Performance Instrument/Visual crosscheck**	
Unit Objective – demonstrate the proper use of flight controls and Visual or PFD derived cues to perform basic flight maneuvers in the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns 4. Steep Turns (45 degree)	a. Pre-Flight briefing b. In Flight	a. Perform the maneuver by sole reference to the window within the PTS standard. b. Perform the maneuver by sole reference to the PFD within the PTS standard. c. Establish airspeed and altitude within the PTS standard.

TAA 10	**Low Speed Envelope**	
Unit Objective – recognize the onset of low speed flight regimes and demonstrate the proper use of flight controls and Visual or PFD derived cues to perform basic low speed flight maneuvers in the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Configuration changes 2. Slow Flight	a. Pre-Flight briefing b. In Flight	Demonstrate slow flight within the PTS standard with the flaps in all possible flap positions and detents.
3. Recovery From Power –Off and Power -On Stalls		a. Demonstrate a recovery from a planned Power-Off or Power-On Stall with minimum altitude loss. b. Demonstrate a recovery from an instructor induced Power-On/Power-Off stall with minimum altitude loss.
4. Recovery from autopilot induced stall		Demonstrate a recovery from an autopilot induced stall with minimum altitude loss.

5. Stall Prevention, Situational Awareness, Task management, and Decision Making		that might lead to an inadvertent stall and cockpit indications that would warn of an impending stall. b. Demonstrate pilot actions to avert the stall prior to its occurrence.

TAA 11	**Descent Planning and Execution**	
Unit Objective – demonstrate the proper descent procedures for the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Automation management	a. Pre-Fight briefing b. Descent planning during the cruise leg and the descent itself from cruise altitude until just prior to flap extension for landing	a. Decide which automated features will be used during the descent and program them prior to beginning the descent. b. Monitor and update the automated features during the descent.
2. Vertical Navigation (VNAV) Planning		Use the descent features of the GPS and the map features of the MFD to plan a fuel efficient descent that avoids known obstacles and terrain.
3. Navigation Programming		Program the entire descent (VFR) and program and activate the desired approach and go-around (IFR).
4. Manual Descent		Perform a manual descent within PTS standards.
5. Autopilot Descent		Perform an autopilot descent within PTS standards (for a manual descent).
6. Task Management, Situational Awareness, CFIT Avoidance		Identify the most important data available from the PFD/MFD.

TAA 12	**Landings**	
Unit Objective – demonstrate landing procedures in the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Before landing procedures	a. Pre-arrival – eLearning b. Pre-Flight Briefing c. In flight d. (VFR) flap extension to turning off the runway or return to pattern altitude in the event of a go-around e. (IFR) from 1,000 feet (stabilized approach until turning off the runway or climb to missed approach altitude	Perform all pre-landing checklist items correctly and in sequence.
2. IFR Landing Transition (Autopilot to manual and manual to Manual)		a. Demonstrate the proper transition from instrument. reference to visual reference b. Demonstrate the proper procedures for autopilot disengagement and transition to landing.
3. Normal landing		Perform a normal full flap landing within the PTS standards. .
4. Soft and Short Field landing		Perform Soft and Short field landings within the PTS standards. .
5. Partial Flap landing		Perform a partial flap landing within the PTS standards.
6. Zero Flap landing		Perform a zero flap landing within the PTS standards.
7. Crosswind landing		Perform a crosswind landing within the PTS standards.
8. Balked landing and Go-Around		a. Make a timely decision to go-around either in flight or after initial touchdown if the landing cannot be accomplished safely. b. Perform the balked landing procedure within the PTS standards.
9.Decision Making and Situational Awareness		a. Demonstrate awareness of all potential weather, traffic, and airfield factors that might impact the approach and landing. b. Make timely decisions to mitigate risks and ensure a successful approach and landing.

TAA 13	**Aircraft Shutdown and Securing procedures**	
Unit Objective – demonstrate proficiency shutting down and securing the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Aircraft Shutdown & Securing Checklist	Postflight	Demonstrate proficiency properly concluding a flight that includes engine shutdown and securing.
2. Aircraft Towing, Ground Handling, and Tiedown		Demonstrate proficiency properly concluding a flight that includes aircraft storage.

TAA 14	**Automated Avionics Interface**	
Unit Objective – demonstrate proficiency interfacing the avionics for flight operations.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Identification of Data/Power Sources a. Air Data failure b. AHRS failure c. Generator/battery failure	a. Pre-Arrival-eLearning b. Classroom c. Pre-flight d. In-flight	a. Understand data/power source failure modes that affect operation of the PFD. b. Identify specific failures and their associated cues.
2. Identification of PFD Failure Modes and corrective actions a. Invalid Sensor Data b. Invalid Heading c. Crosscheck Monitor d. Recoverable Attitude e. Invalid Attitude and Heading f. Complete/partial Electrical Power failure		Perform the appropriate corrective action for each malfunction.
3. Aircraft Automation Management		a. Understand and be able to correctly describe the interface between all the installed avionics systems in the aircraft. b. Demonstrate proficiency operating the Avionics installed on the aircraft as an integrated system.

TAA 15	GPS Operation and Programming	
Unit Objective – demonstrate proficiency with the GPS.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. VFR: Direct-To Function Nearest Function Airport Information Function Flight Plan Function	In-flight	Demonstrate proficiency using the GPS including the Direct-To, Nearest, and Airport Information functions.
2. IFR: Direct-To Function Nearest Function DP/STAR/Approach Function Flight Plan Function – Integration with PFD/MFD/Autopilot	a. Pre-flight b. In-flight	a. Demonstrate proficiency using the GPS including the Direct-To, Nearest, Airport Information, DP/STAR/Approach functions. b. Demonstrate proficiency flight planning the GPS and flying the flight plan.

TAA 16	Autopilot Programming, Modes, and Annunciators	
Unit Objective – demonstrate proper use of the autopilot.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Control Wheel Steering	In-flight	Demonstrate proper use of the control wheel steering.
2. LNAV and VNAV Programming	In-flight	Demonstrate proper use of the LNAV and VNAV functions of the autopilot.
3. Vertical Speed and Altitude Hold	In-flight	Demonstrate proper use of the vertical speed and altitude hold.
4. Navigation Modes	In-flight	Demonstrate proper use of the navigation modes of the autopilot.
5. Coupled Approach Modes	In-flight	Demonstrate proper use of the coupled approach modes of the autopilot.
6. Auto trim Mode	In-flight	Demonstrate proper use of the auto trim mode of the autopilot.
7. Flight Director/PFD Interface	In-flight	Demonstrate proper use of the flight director/PFD interfaces.

TAA 17	Automated Avionics Operation and Systems Interface	
Unit Objective – demonstrate proper use of the Avionics Interface including normal, abnormal, and emergency operations of the TAA and all installed avionics.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Pilot Flight Display	In-flight	Demonstrate proper use of the PFD during autopilot operation.
2. Multi Function Display Normal Operation Setup Pages Navigation Modes Traffic Mode Weather Modes Checklist Modes	a. Pre-flight b. In-flight c. Post-flight	Demonstrate proper use of the avionics interface during normal operations including setup, navigation, traffic, weather, and checklist.
3. Abnormal and Emergency Indications and Operations Navigation Modes Traffic Mode Weather Modes Checklist Modes	a. Pre-flight b. In-flight c. Post-flight	Demonstrate proper use of the avionics interface during abnormal and emergency operations including setup, navigation, traffic, weather, and checklist.
4. EHSI Operation	a. Pre-flight b. In-flight	Demonstrate proper setup, use, and operation.

TAA 18	Datalink Situational Awareness Systems and Additional Avionics Setup	
Unit Objective –demonstrate proper use of the EHSI and it's interface with other installed avionics.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Datalink Weather Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented.
2. Datalink Traffic Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented.
3. Terrain Display and Avoidance Systems Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented.
4. Datalink Flight Plan and Traffic Control Systems Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented.

TAA 19 **Emergency Escape Maneuvers/ Recovery from Unusual Attitudes and Upsets/ Use of Ballistic Parachute Recovery System (BRS)**		
Unit Objective – demonstrate unusual attitude/upset recovery in the TAA and discuss the proper use of the BRS if installed.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. PFD	In-flight	Demonstrate unusual attitude recovery using the PFD to PTS standards.
2. Backup Instruments	In-flight	Demonstrate unusual attitude recovery using backup instruments to PTS standards.
3. Autopilot – Limitations of it use for recovery	a. Pre-flight b. In-flight	Demonstrate unusual attitude recovery using the autopilot to PTS standards.
4. Upset Training	In-flight	Demonstrate upset recovery using the PFD.
5. BRS Preflight In-flight Activation Post Deployment Procedures Reasons for Deployment	a. Pre-flight b. In-flight c. BRS Training Device	a. Demonstrate procedural knowledge proper use of BRS. b. Describe situations when it is appropriate to deploy the BRS and situations when it is not appropriate.
6. Engine Failure/Emergency Descent	a. Pre-flight b. In-flight c. BRS Training Device	a. Demonstrate procedures to be used during engine failure or situations requiring an emergency descent. b. When given a realistic scenario make an appropriate decision between landing the aircraft or deployment of the BRS system.
7. Emergency Escape Maneuvers, Risk management, and Decision Making	a. Pre-flight b. In-flight c. BRS Training Device	a. Understand the capabilities of the PFD, Autopilot, and BRS. b. Develop a problem solving matrix for use of all these systems when faced with IFR/VFR emergency procedures. c. Demonstrate the ability to make correct decisions when faced with IFR/VFR emergency conditions.

TAA 20	**Instrument Approach Procedures (IFR Rated Pilots Only)**	
Unit Objective – demonstrate IFR procedures and proficiency in the TAA using the installed equipment.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Manual ILS	a. Pre-arrival – eLearning b. Pre-flight Briefing c. In-flight	Perform the approach within the PTS standards.
2. Coupled ILS		Perform the approach within the PTS standards (for a manual approach).
3. Manual VOR		Perform the approach within the PTS standards.
4. Manual GPS		a. Program and activate the GPS approach in a timely manner. b. Perform the approach within the PTS standards.
5. Coupled VOR/GPS VNAV Approach		a. Program and activate the GPS/VNAV approach in a timely manner. b. Perform the GPS/VNAV approach within the PTS standards (for a manual approach).
6. Manual Missed Approach		Perform the missed approach within the PTS standards.
7. Autopilot Flown missed Approach		Perform the missed approach within the PTS standards (for a manual missed approach).
8. Procedure Turn		Demonstrate Procedure to PTS standards.
9. Holding		Demonstrate Instrument Holding to PTS standards.
10. Task Management and Decision making	In-flight	Demonstrate proper planning and prioritization of time between avionics programming and execution of IFR procedures.
11. Situational Awareness	In-flight	Demonstrate proper use of the MFD and HSI to maintain situational awareness during IFR procedures.